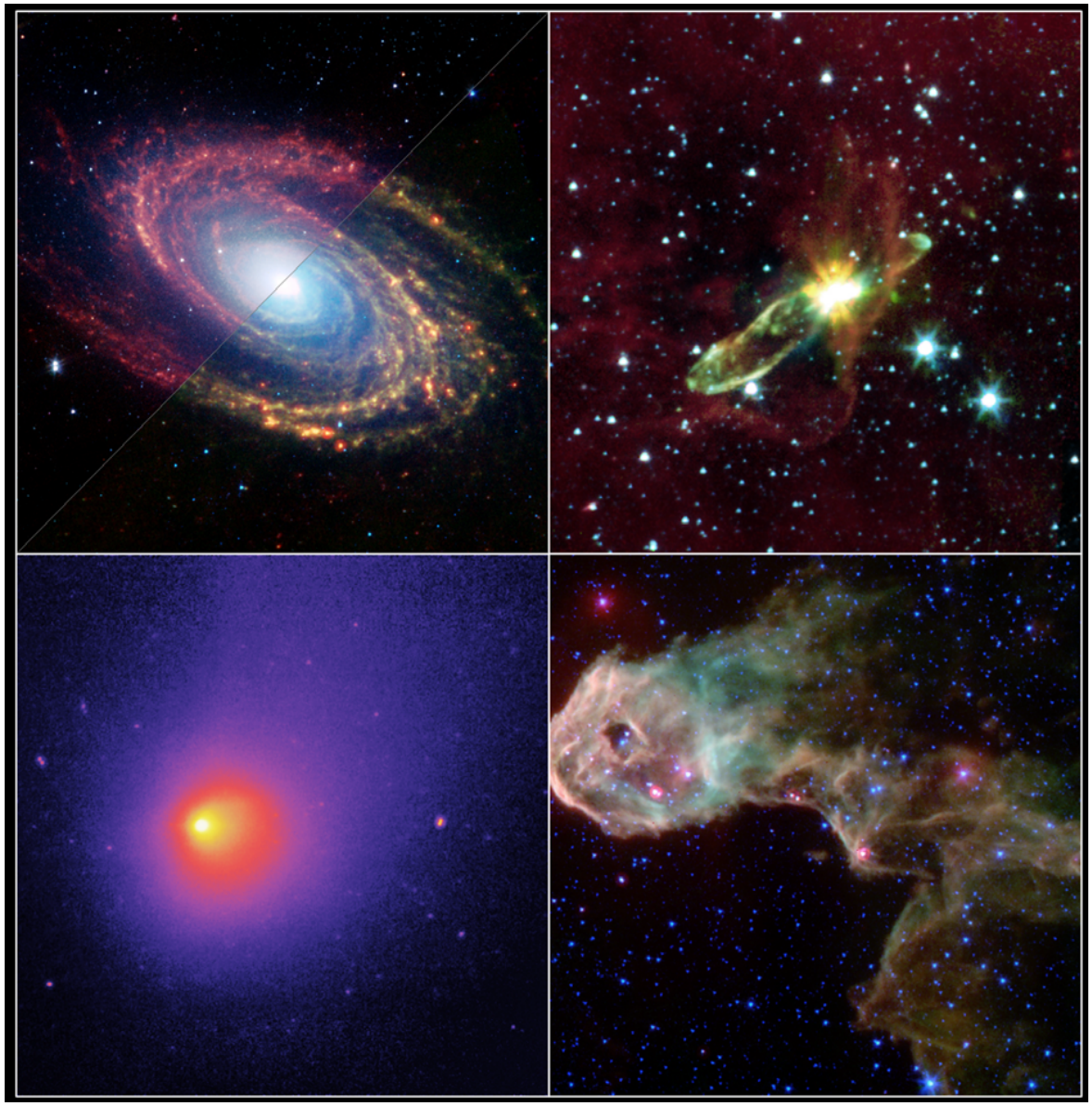
Office of Space Science

Astronomy and Physics Division Status

Anne L. Kinney

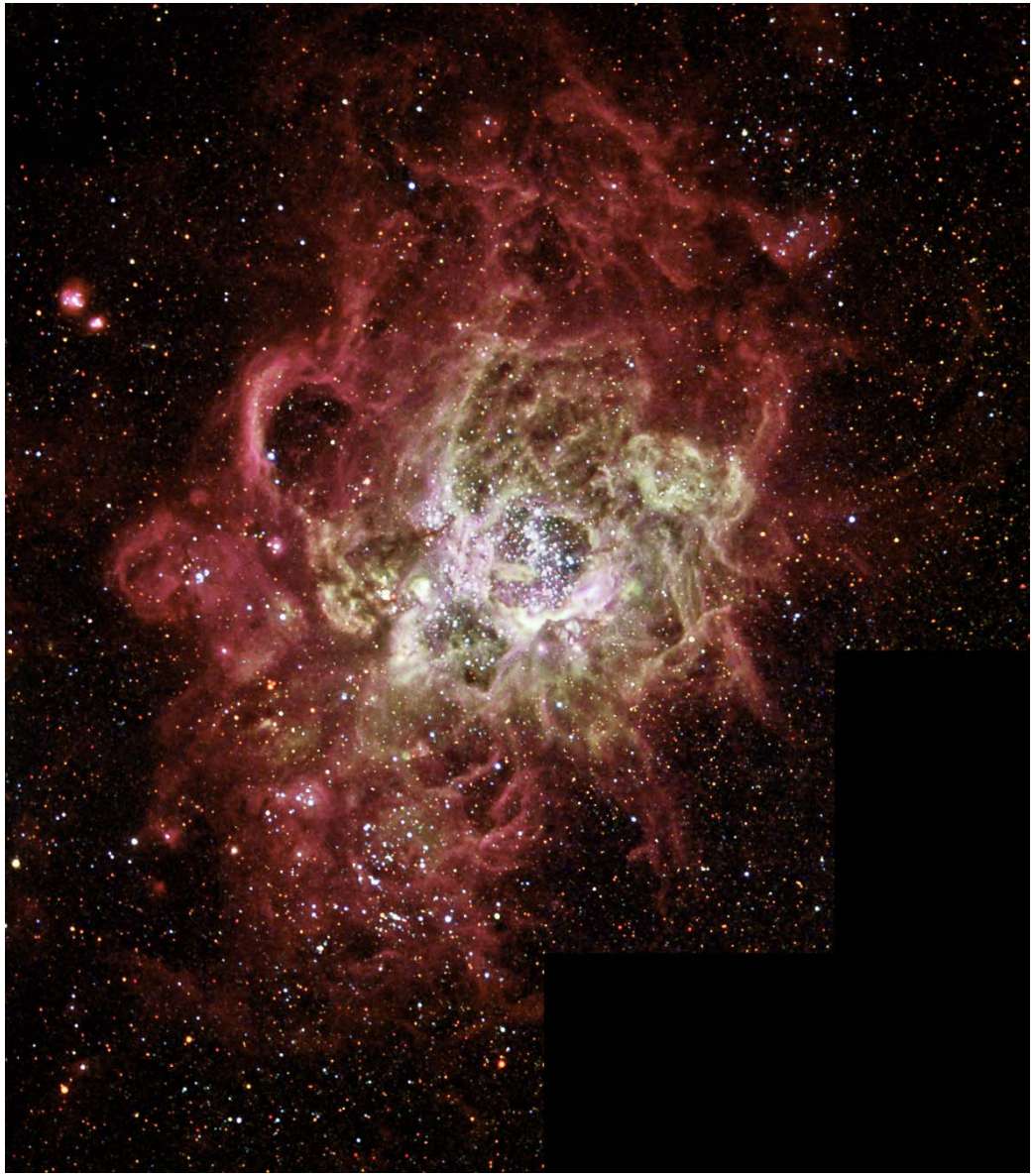
January 5, 2004

Spitzer - First Releases



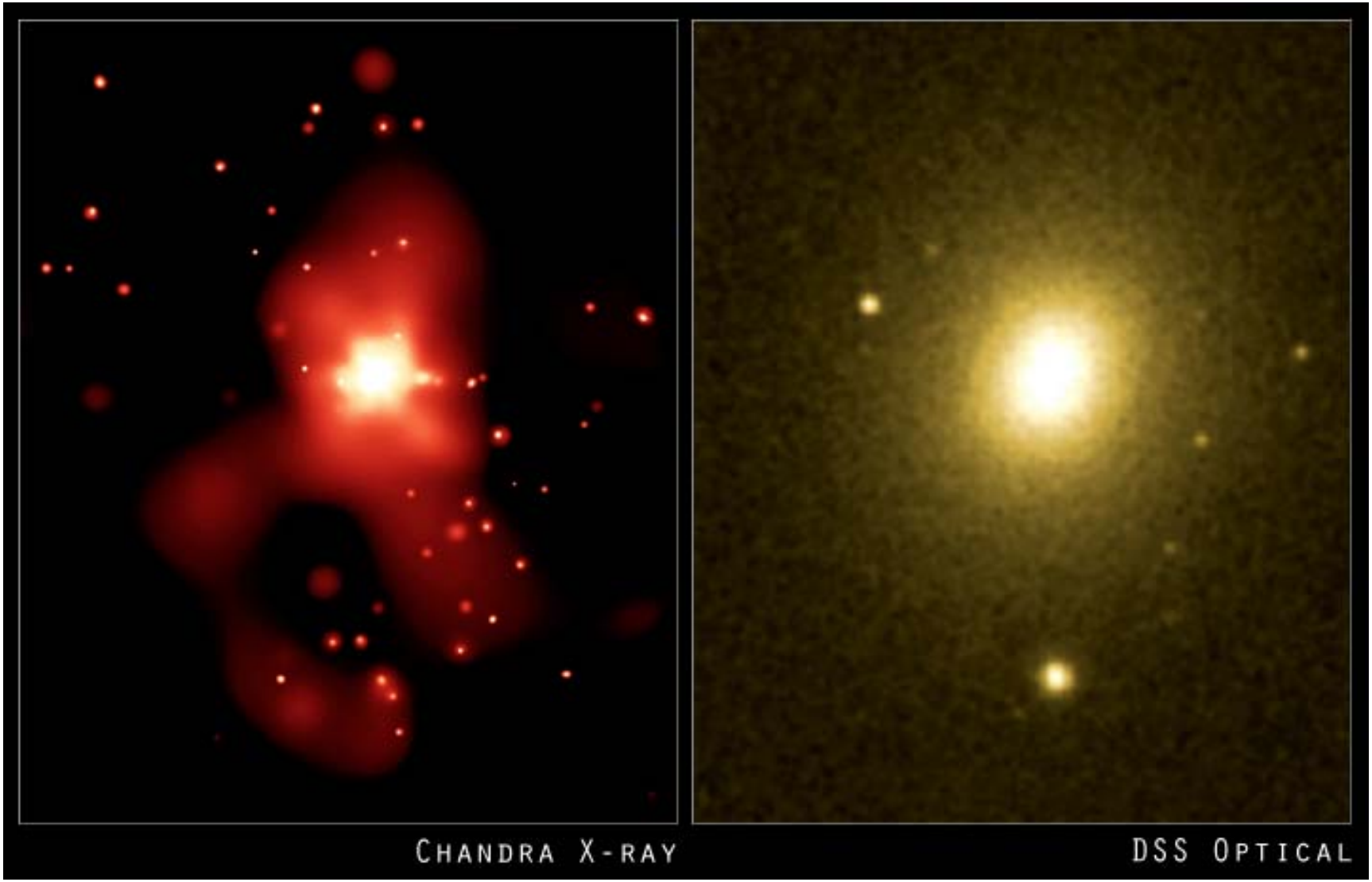
SSC-2003-06k

Hubble - NGC 604



STSci-PRC2003-30

Chandra - NGC4261



GALEX - M31

Andromeda Galaxy
GALEX

Andromeda Galaxy
Visible light image (John Gleason)

Significant Events

- Launched CHIPS from VAFB on 01-12-03.
- Launched GALEX from CCAFS on 04-28-03.
- Launched SIRTF (Spitzer) from CCAFS on 08-25-03.
  - Three Great Observatories up and operating.
- Launched SPEAR instrument from Russia on Korean satellite 08-27-03.
- SIM & JWST passed initial confirmation review to enter Phase B.
- GLAST passed confirmation review to enter Phase C/D.
- About to begin Beyond Einstein strategic missions.

Astronomical Search for Origins Developmental Mission Status

	Launch	Oct	Nov	Dec	STATUS
Spitzer	**Aug '03**	**GRN**	**GRN**	**GRN**	IOC completed, 30-day Science Verification completed. Entered nominal Ops Dec 2. Initial He measurement completed & 4.6 - 6.3 yr lifetime expected.
HST	**Jun '06**	**GRN** **RED**	**GRN** **RED**	**GRN** **RED**	SM4 launch date NET 6-15-06. Funding for continuing SM4 launch slips not budgeted. Required end-of-life de-orbit mission not fully funded.
SOFIA	**Apr '05**	**YEL**	**YEL**	**YEL**	Successful 1st steering of telescope in the 747 after initial "floating" of the bearing. Schedule revision in process with new date for first science flight.
Keck Interferometer	**2005**	**GRN** **RED**	**GRN** **RED**	**YEL** **RED**	V-squared Operations Readiness Review delayed 3 months; Nuller pre-ship review delayed 2 months. OHA has agreed to dismiss lawsuit; EIS public scoping meetings Jan. 5-13.
LBTI	**Sep '06**	**GRN**	**GRN**	**GRN**	No changes to plan.
Kepler	**2007**	**GRN**	**GRN**	**GRN**	Ground Ops and Systems issues from SRR being addressed vigorously.
SIM	**Dec '09**	**GRN**	**GRN**	**GRN**	Completed SRR. Project is working on impact of $8M cut in FY04 based upon Congressional conference report.
JWST	**Aug '11**	**GRN**	**GRN**	**GRN**	Primary activities centered around preparations for SRR in December.
TPF	**tbd**	**GRN**	**GRN**	**GRN**	Good technology progress; >40 contracts underway; Science Roadmap under review.

GRN	Proceeding on Plan, only normal, minor problems
YEL	Significant Problems or Concerns but feasible plan to resolve
RED	Major Problems; Solution path unclear

Structure and Evolution of the Universe Developmental Mission Status

	Launch	Oct	Nov	Dec	STATUS
GP-B	**Apr '04**	**YEL**	**RED**	**RED**	Improper Interpoint Converter usage has forced launch delay in order to fix problem. EPMC scheduled for Jan 15 to review replan. Launch April 20, 2004.
Swift	**Jul '04**	**RED**	**RED**	**RED**	Burst Alert Telescope (BAT) instrument delivery slipped to Jan 04. Cost Cap Review in early Jan.
Astro-E2	**Feb '05**	**RED**	**RED**	**RED**	"Ice Plug" anomaly being investigated by GSFC.
GLAST	**Feb '07**	**GRN**	**GRN**	**GRN**	Successful Agency PMC, GLAST confirmed for implementation. New launch date.
Herschel	**2007**	**GRN**	**YEL**	**RED**	Project is estimating increased funding needs for FY05.
Planck	**2007**	**YEL**	**YEL**	**YEL**	Cryocooler lifetime estimated to be one year, which is half of what is required. Further testing has been initiated.
EUSO	**2008**	**GRN**	**GRN**	**GRN**	ESA Phase A studies extended until February 2004.
LISA	**2011**	**GRN**	**GRN**	**GRN**	Bilateral with ESA held Dec 15, 2003.
Con-X	**2013**	**GRN**	**GRN**	**GRN**	Technology work continues.
Balloons	**Ongoing**	**GRN**	**GRN**	**GRN**	Antarctica LDB Campaign underway: 2 missions launched.

GRN	Proceeding on Plan, only normal, minor problems
YEL	Significant Problems or Concerns but feasible plan to resolve
RED	Major Problems; Solution path unclear

Operating Missions Status

	Launch/Phase	Oct	Nov	Dec	STATUS
HST	4-25-90 Prime	GRN	GRN	GRN	
Rossi XTE	12-30-95 Extended	GRN	GRN	GRN	
2MASS	4-1-97 Extended	GRN	GRN	GRN	
SWAS	12-3-98 Extended	GRN	GRN	GRN	Spacecraft is now in inertial hold awaiting water measures on Mars and Venus later this year. Program terminates on 7-13-04
FUSE	6-24-99 Extended	GRN	GRN	GRN	Cycle 5 selections have been made.
Chandra XO	7-19-99 Prime	GRN	GRN	GRN	Science recommenced 11-14 with 742 ksec lost due to CMEs. Solar activity on 11-21 caused 100 ksec to be lost, while on 12-2 89.6 ksec lost.
XMM-Newton	12-9-99 Prime	GRN	GRN	GRN	In Nov, ESA extended the mission until 3-2008.
HETE-2	10-8-00 Extended	GRN	GRN	GRN	Mission extended to 9-30-04, to overlap with Swift.
WMAP	6-30-01 Extended	GRN	GRN	GRN	
Integral	10-17-02 Prime	GRN	GRN	GRN	ESA has approved 4 year extension to mission starting 12-17.
CHIPS	1-15-03 Prime	GRN	GRN	GRN	Experienced CPU reset on 12-4. Reboot was fine and science continues. Cause being investigated. Temperature mitigation tests continue as well.
GALEX	4-28-03 Prime	GRN	GRN	YEL	FUV detector had overcounts on 12-9, and then S/C entered Sun Point Mode on on 12-12. Investigation continues.

GRN Proceeding on Plan, only normal, minor problems

Future Launches
Gravity Probe B

Launch:

April 20, 2004

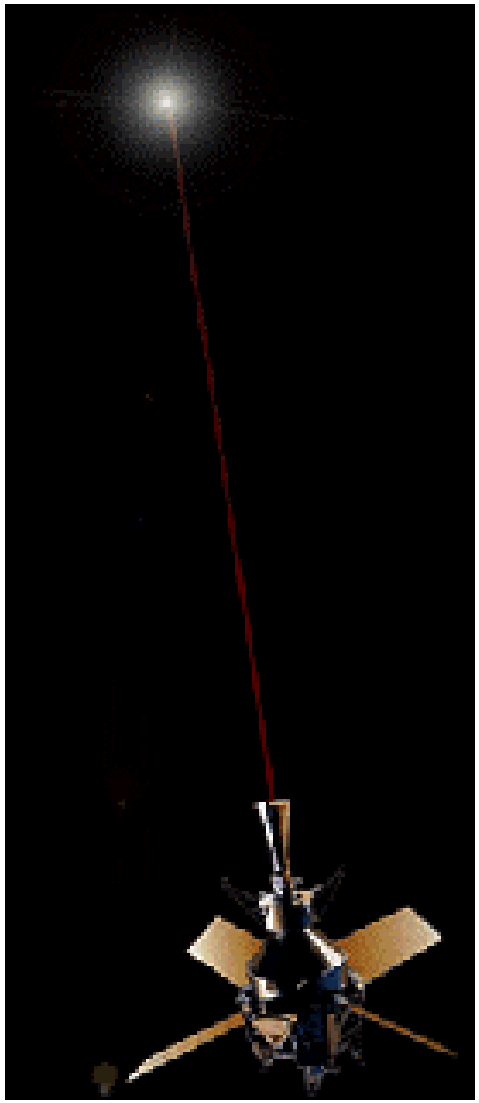
VAFB, CA.

Launch Vehicle:

Delta II

Primary Science Objective:

Gravity Probe B uses four gyroscopes developed to test two predictions of Albert Einstein's general theory of relativity. While in a polar Earth orbit, it will measure how space and time are warped by the presence of the Earth, and how the Earth's rotation drags space-time around with it.



Future Launches
SWIFT

Launch:
July 2004
Cape Canaveral, FL.

Launch Vehicle:
Delta 7320

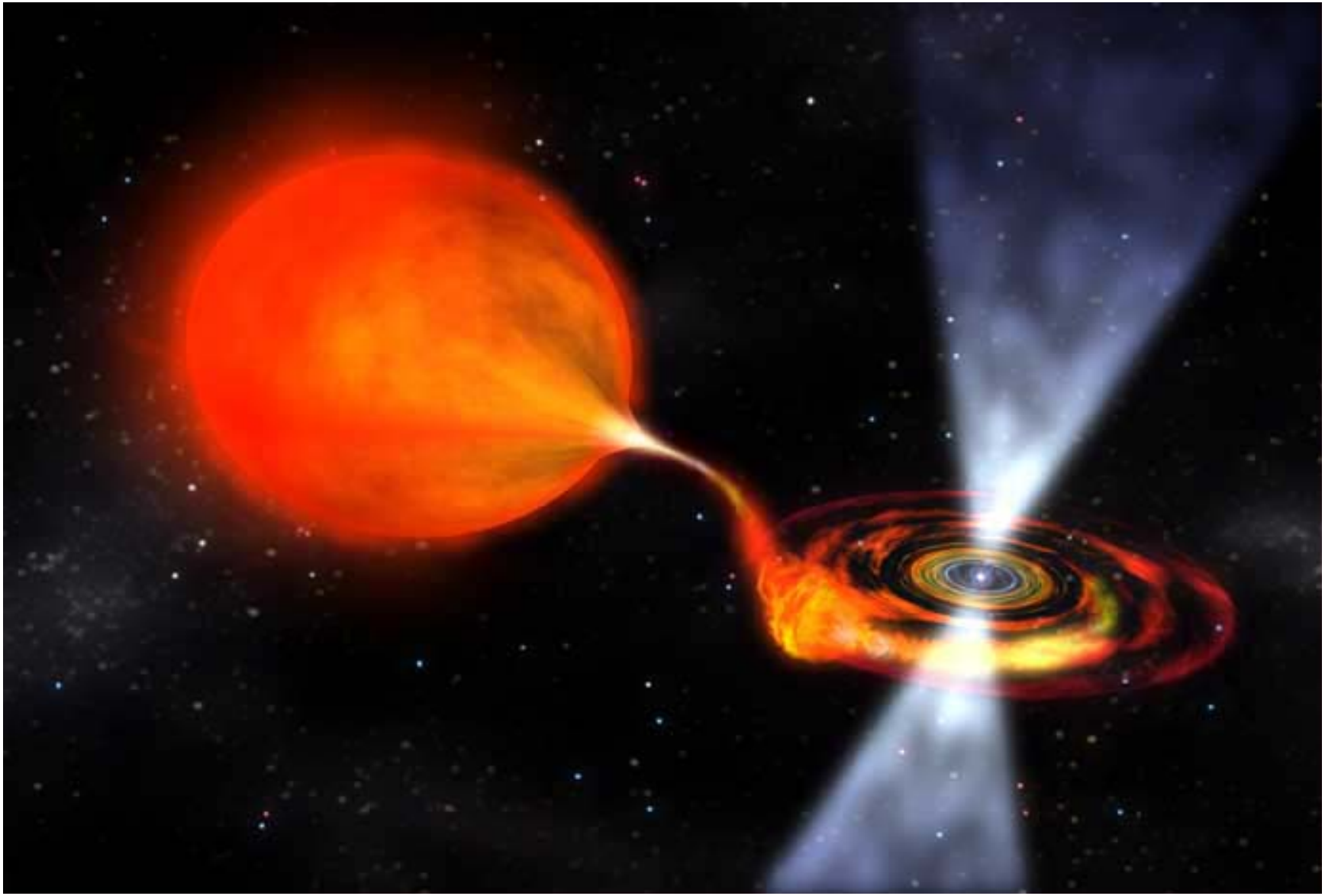
Primary Science Objective:

The primary objective of the SWIFT mission is to determine the origin of Gamma Ray Bursts and to use them to probe the early universe.

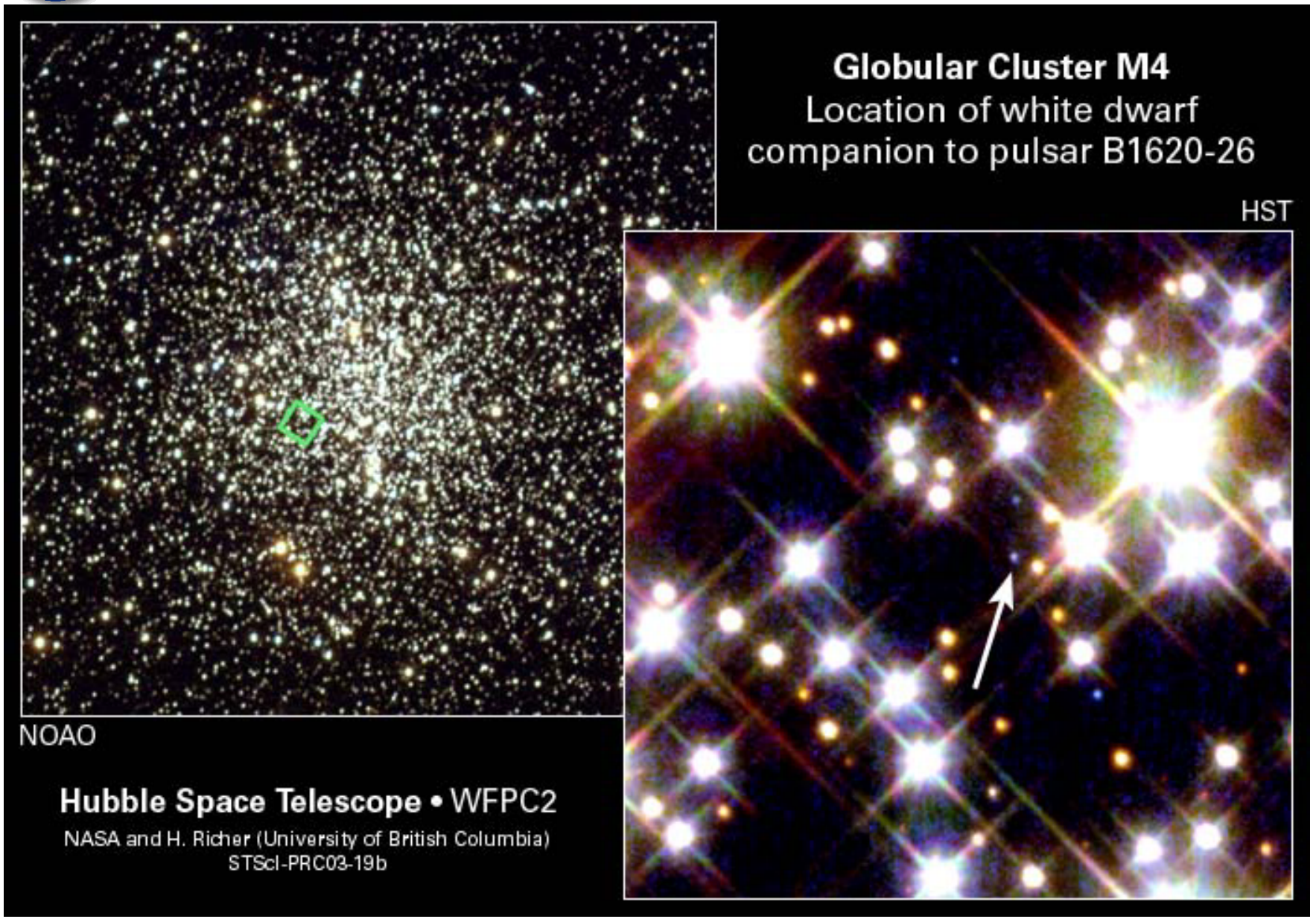
Space Science Updates

WMAP: Universe's Baby Picture	February 11, 2003
HETE: Nearby Gamma Ray Burst	March 19, 2003
RXTE: Cosmic Speed Limit on Pulsars	July 2, 2003
Hubble: Oldest Known Planet	July 7, 2003
Chandra: Black Hole Sound Waves	September 9, 2003

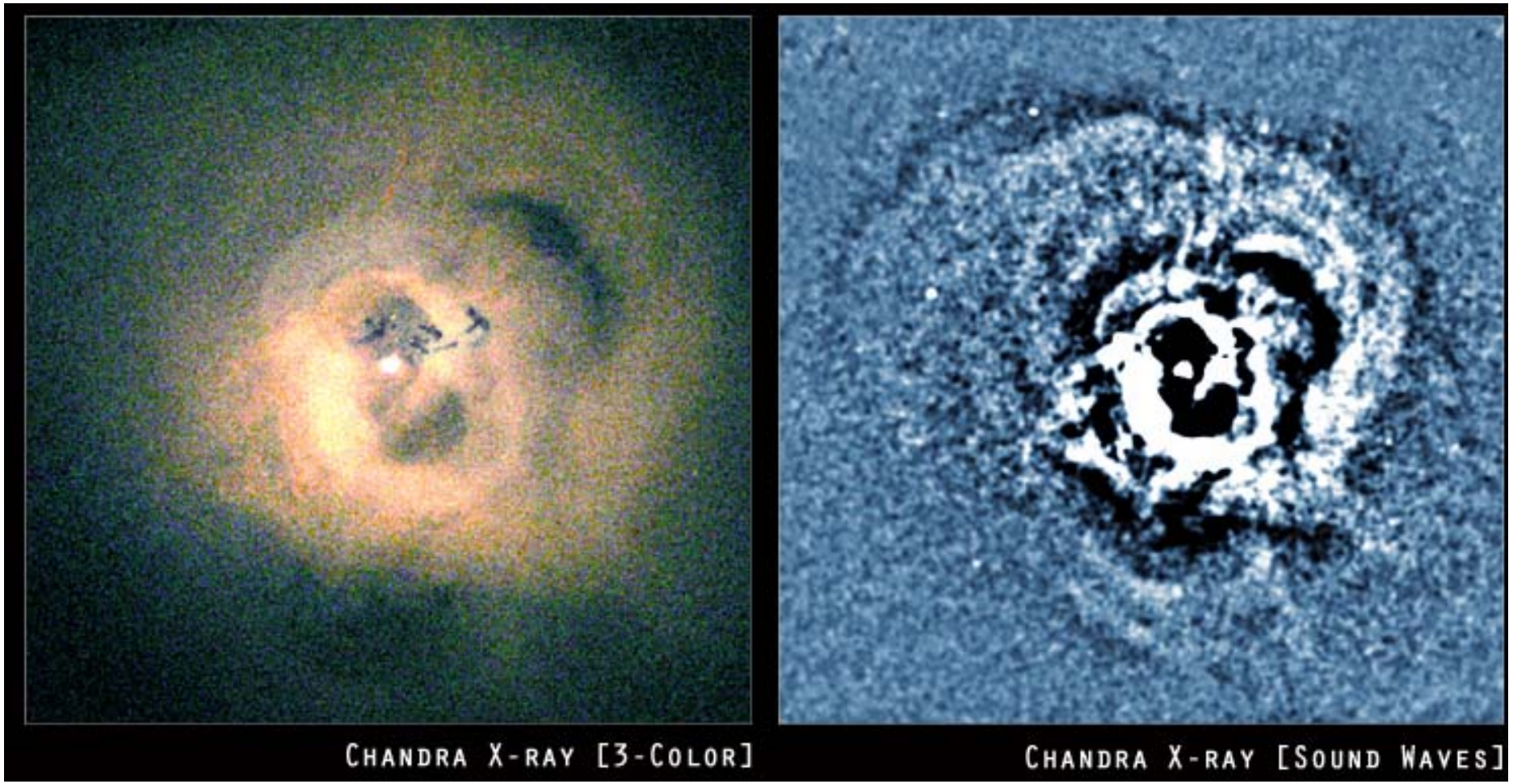
RXTE SSU - Pulsar Speed Limit



HST SSU - Oldest Planet



Chandra Blackhole Sound Waves



Advisory Groups

- Astronomy and Physics Division Advisory Councils:
  - SEUS
  - OS
    - APWG
    - SAWG
  - AAAC - JOINT NSF/NASA FACA Committee
- Integrated Working Group on Physics of the Universe
  - Joint NASA/NSF/DOE/OSTP response to National Academy of Science recommendation.

Advisory Councils - SEUS

- Three meetings were held in CY 2003.
  - SEUS is concerned with the funding level for Research and Analysis.
  - SEUS endorsed completing SM4, operating HST while the observatory is viable and its science capability is compelling and unique, and then de-orbiting the observatory.
  - SEUS views with concern the AAAC statement about relaxation of the traditional ground/space separation.
  - SEUS applauds the efforts of NASA and DOE in formulating the principles for cooperation and implementation of the Joint Dark Energy Mission.

Advisory Councils - OS

- Three meetings were held in CY 2003.
  - OS was regularly briefed on status of missions.
  - OS is concerned about technology development of future missions such as SAFIR and ultraviolet missions.
  - OS would like to see an open competition for the TPF science center.
  - OS endorses NASA plan to carry out SM4 as soon as possible.
  - OS concurs with the NASA plan to develop the capability to de-orbit HST with a propulsion module.

Advisory Councils - APWG

- Two meetings were held in CY 2003. The APWG reports to the SEUS and the OS.
  - APWG praised that R&A increases are now back to keeping level with inflation.
  - APWG urged that SZ continue to associate R&A with mission development lines to help protect such research (*i.e.,* Beyond Einstein Foundation Science).
  - APWG urged continued support for the Theory programs.
  - APWG applauded continued Code S and R cooperation in funding new technologies.

Advisory Councils - SAWG

- Two meetings were held in CY 2003. The SAWG reports to the SEUS and the OS.
- Concerns:
  - Virtual Observatory.
  - The new GSFC Legacy Archive for Microwave Background Data Analysis (LAMBDA) needs to be easily accessible to the community.
  - ADEC (Astrophysics Data Centers Executive Committee)
    - SAWG strongly supports Code S in their efforts to leverage the invested resources in data centers, encouraging the community to propose through the Applied Systems and Information Research Program (ASIRP) for the development of interoperability tools.

Division Key Issues

- Launch GP-B.
  - Launch criteria not yet met.
- Funding SM-4 delay.
  - Delay costs $10M per month.
  - Launch date TBD.
  - Funding source for delay not identified.
- Swift launch delayed.
- Start up of Beyond Einstein.
- Astronomy and Physics Roadmapping - again!

Visit us at the NASA Booth

American Astronomical Society OSS Exhibit Booth Staffing				
	Jan 5th Monday	**Jan 6th Tuesday**	**Jan 7th Wednesday**	**Jan 8th Thursday**
9:30AM to 10:30AM	D. Kniffen	Hertz/Tsvetanov	Docal/Anita K.	E. Smith
10:30AM to 11:30AM	D. Kniffen	J. Hayes	Docal/Anita K.	P. Hertz
11:30AM to 12:45PM	Kinney/Waller	Kinney/Wiseman	A. Kinney	Wiseman
1:00PM to 2:00PM	NASA TOWN MTG	JWST TOWN MTG	NSF TOWN MTG	ALMA TOWN MTG
2:15PM to 3:30PM	L. Narasimhan	P. Sakimoto	J. Hayes	Woods/Cohen
3:30PM to 4:30PM	L. Narasimhan	E. Smith	Hertz/Wiseman	Woods/Cohen
4:30PM to 5:30PM	Smith/Waller	Sakimoto/Waller	B. Waller	
5:30PM to 6:30PM	Woods/Cohen	Woods/Cohen	Woods/Cohen	
FLOATERS:	Lou Kaluzienski	Lou Kaluzienski	Lou Kaluzienski	Lou Kaluzienski
	Jeff Rosendhal	Jeff Rosendhal	Jeff Rosendhal	Jeff Rosendhal
	Marc Allen			